WHAT IS CLAIMED IS:

1. A thin film magnetic head comprising a write element, wherein:

said write element comprises a first magnetic film, a pole portion, a second magnetic film, a gap film, a first coil and a second coil;

said first magnetic film has one flat surface;

said pole portion comprises a first pole portion and a second pole portion;

said first pole portion projects from said flat surface of said first magnetic film at a medium-facing surface side and has a reduced track width;

said second pole portion faces said first pole portion with said gap film between them;

said second magnetic film is connected to said second pole portion and is joined to said first magnetic film by a back gap portion that is recessed in the thin film magnetic head from the medium-facing surface;

said first coil and said second coil surround in a spiral form said back gap portion on said flat surface of said first magnetic film, and one of said first and second coils is fitted into the space between coil turns of the other, insulated from the coil turns of the other by a second insulating film, and said first and second coils are connected to each other so as to generate magnetic flux in the same direction;

one of said first coil and said second coil has a side surface being adjacent to said pole portion with said second insulating film, and another

side surface being adjacent to said back gap portion with said second insulating film, and each of said side surfaces has a taper angle making the sectional shape of the coil turn narrower in the lower part and wider in the upper part; and

the upper surfaces of said first and second coils form the same plane.

2. A thin film magnetic head according to claim 1, wherein:

said first coil has a taper angle making its sectional shape wider in the lower part and narrower in the upper part; and

said second coil has a taper angle making its sectional shape narrower in the lower part and wider in the upper part and has the outermost coil turn adjacent to said pole portion and said back gap portion.

3. A thin film magnetic head according to claim 2, wherein:

said taper angles are equal to or more than 80 degrees and less than 90 degrees in relation to said flat surface of said first magnetic film.

4. A thin film magnetic head according to claim 3, wherein:

said first coil is a plating film and is formed on a first insulating film formed on said flat surface of said first magnetic film; and

said second coil is a plating film and is formed on said second insulating film in said space, and said second insulating film is formed on the bottom face and both side faces of said space.

5. A thin film magnetic head according to claim 1, further comprising a third coil and a fourth coil, wherein:

said third coil and said fourth coil are provided above said first coil and said second coil, insulated from said first coil and said second coil by a third insulating film, and said third and fourth coils surround in a spiral form a back gap portion connected to said back gap portion on the surface of said third insulating film, and one of said third and fourth coils is fitted into the space between coil turns of the other, insulated from the coil turns of the other by a fourth insulating film;

the outermost coil turn of said third coil or said fourth coil is adjacent to said pole portion with said fourth insulating film; and

the innermost coil turn of said third coil or said fourth coil is adjacent to said back gap portion with said fourth insulating film.

6. A thin film magnetic head according to claim 5, wherein:

the outermost coil turn of said third coil or said fourth coil has a side surface being adjacent to said pole portion with said fourth insulating film, and the innermost coil turn of said third coil or said fourth coil has a side surface being adjacent to said back gap portion with said fourth insulating film, and each of said side surfaces has a taper angle making the sectional shape of the coil turn narrower in the lower part and wider in the upper part.

7. A thin film magnetic head according to claim 6, wherein:

said third coil has a taper angle making its sectional shape wider in the lower part and narrower in the upper part; and

said fourth coil has a taper angle making its sectional shape narrower in the lower part and wider in the upper part and has the outermost coil turn adjacent to said pole portion and said back gap portion.

8. A thin film magnetic head according to claim 7, wherein:

said taper angles are equal to or more than 80 degrees and less than 90 degrees in relation to said surface of said third magnetic film.

9. A thin film magnetic head according to claim 8, wherein:

said third coil is a plating film and is formed on said third insulating film; and

said fourth coil is a plating film and is formed on said fourth insulating film in said space, and said fourth insulating film is formed on the bottom face and both side faces of said space.

10. A thin film magnetic head according to claim 1, further comprising a read element, wherein:

said read element comprises a giant magnetoresistance effect element.

11. A thin film magnetic head according to claim 10, wherein:

said giant magnetoresistance effect element includes one of a spin valve film and a ferromagnetic tunnel junction.

12. A magnetic recording/reproducing apparatus comprising a thin film magnetic head and a magnetic recording medium, said thin film magnetic head comprising a write element, wherein:

said write element comprises a first magnetic film, a pole portion, a second magnetic film, a gap film, a first coil and a second coil;

said first magnetic film has one flat surface;

said pole portion comprises a first pole portion and a second pole portion;

said first pole portion projects from said flat surface of said first magnetic film at a medium-facing surface side and has a reduced track width;

said second pole portion faces said first pole portion with said gap film between them;

said second magnetic film is connected to said second pole portion and is joined to said first magnetic film by a back gap portion that is recessed in the thin film magnetic head from the medium-facing surface;

said first coil and said second coil surround in a spiral form said back gap portion on said flat surface of said first magnetic film, and one of said first and second coils is fitted into the space between coil turns of the other, insulated from the coil turns of the other by a second insulating film, and said first and second coils are connected to each other so as to generate

magnetic flux in the same direction;

one of said first coil and said second coil has a side surface being adjacent to said pole portion with said second insulating film, and another side surface being adjacent to said back gap portion with said second insulating film, and each of said side surfaces has a taper angle making the sectional shape of the coil turn narrower in the lower part and wider in the upper part;

the upper surfaces of said first and second coils form the same plane; and

said magnetic recording medium performs magnetic recording/reproducing operations in cooperation with said thin film magnetic head.

13. A magnetic recording/reproducing apparatus according to claim 12, wherein:

said first coil has a taper angle making its sectional shape wider in the lower part and narrower in the upper part; and

said second coil has a taper angle making its sectional shape narrower in the lower part and wider in the upper part and has the outermost coil turn adjacent to said pole portion and said back gap portion.

14. A magnetic recording/reproducing apparatus according to claim 13, wherein:

said taper angles are equal to or more than 80 degrees and less than

90 degrees in relation to said flat surface of said first magnetic film.

15. A magnetic recording/reproducing apparatus according to claim 14, wherein:

said first coil is a plating film and is formed on a first insulating film formed on said flat surface of said first magnetic film; and

said second coil is a plating film and is formed on said second insulating film in said space, and said second insulating film is formed on the bottom face and both side faces of said space.

16. A magnetic recording/reproducing apparatus according to claim 12, further comprising a third coil and a fourth coil, wherein:

said third coil and said fourth coil are provided above said first coil and said second coil, insulated from said first coil and said second coil by a third insulating film, and said third and fourth coils surround in a spiral form a back gap portion connected to said back gap portion on the surface of said third insulating film, and one of said third and fourth coils is fitted into the space between coil turns of the other, insulated from the coil turns of the other by a fourth insulating film;

the outermost coil turn of said third coil or said fourth coil is adjacent to said pole portion with said fourth insulating film; and

the innermost coil turn of said third coil or said fourth coil is adjacent to said back gap portion with said fourth insulating film.

17. A magnetic recording/reproducing apparatus according to claim 16, wherein:

the outermost coil turn of said third coil or said fourth coil has a side surface being adjacent to said pole portion with said fourth insulating film, and the innermost coil turn of said third coil or said fourth coil has a side surface being adjacent to said back gap portion with said fourth insulating film, and each of said side surfaces has a taper angle making the sectional shape of the coil turn narrower in the lower part and wider in the upper part.

18. A magnetic recording/reproducing apparatus according to claim 17, wherein:

said third coil has a taper angle making its sectional shape wider in the lower part and narrower in the upper part; and

said fourth coil has a taper angle making its sectional shape narrower in the lower part and wider in the upper part and has the outermost coil turn adjacent to said pole portion and said back gap portion.

19. A magnetic recording/reproducing apparatus according to claim 18, wherein:

said taper angles are equal to or more than 80 degrees and less than 90 degrees in relation to said surface of said third magnetic film.

20. A magnetic recording/reproducing apparatus according to

claim 19, wherein:

said third coil is a plating film and is formed on said third insulating film; and

said fourth coil is a plating film and is formed on said fourth insulating film in said space, and said fourth insulating film is formed on the bottom face and both side faces of said space.

21. A magnetic recording/reproducing apparatus according to claim 12, further comprising a read element, wherein:

said read element comprises a giant magnetoresistance effect element.

22. A magnetic recording/reproducing apparatus according to claim 21, wherein:

said giant magnetoresistance effect element includes one of a spin valve film and a ferromagnetic tunnel junction.

23. A method for manufacturing a thin film magnetic head comprising a write element, comprising the steps of:

forming a first coil, a first pole piece and a first back gap piece on a first insulating film formed on the surface of a first magnetic film so that each of them has a taper angle making its sectional shape wider in the lower part of it and narrower in the upper part;

forming a second insulating film on the surfaces of said first coil,

first pole piece and first back gap piece and the vicinity thereof;

forming a first seed film on said second insulating film;

growing a plating film for a second coil on said first seed film in an area where said second coil is to be formed, so that said plating film fills up the spaces between said first pole piece and the outermost coil turn of said first coil, between coil turns of said first coil, and between the innermost coil turn of said first coil and said first back gap piece; and

flattening said plating film by polishing so that a pattern of said second coil is obtained.

24. A manufacturing method according to claim 23, further comprising the steps of:

forming a third coil, a second pole piece and a second back gap piece on the flattened surface that has been formed by the flattening process for obtaining a pattern of said second coil;

forming a third insulating film on the surfaces of said third coil, said second pole piece and said second back gap piece and the vicinity thereof;

forming a second seed film on said third insulating film;

growing a plating film for a fourth coil on said second seed film in an area where said fourth coil is to be formed, so that said plating film fills up the spaces between said second pole piece and the outermost coil turn of said third coil, between coil turns of said third coil, and between the innermost coil turn of said third coil and said second back gap piece; and

forming an insulating film covering said plating film and thereafter

performing a flattening process for obtaining a pattern of said fourth coil.

25. A manufacturing method according to claim 24, further comprising the step of:

forming said third coil, said second pole piece and said second back gap piece each having a taper angle making its sectional shape wider in the lower part of it and narrower in the upper part.

26. A manufacturing method according to claim 23, wherein said first coil is formed by means of a Cu-plating process; and

said plating film for said second coil is formed by means of a Cu-plating process.

27. A manufacturing method according to claim 23, wherein said first seed film comprises a Cu film formed by sputtering and a Cu film formed by CVD.

28. A manufacturing method according to claim 23, wherein said second seed film comprises a Cu film formed by sputtering and a Cu film formed by CVD, and said second coil is formed by applying a Cu-plating process onto said second seed film.

29. A manufacturing method according to claim 23, wherein said insulating film is an alumina-CVD film formed by an atomic layer

method.

30. A manufacturing method according to claim 29, wherein said insulating film is in a range of 50 nm to 150 nm in thickness.

31. A manufacturing method according to claim 23, wherein said taper angles are determined by selecting a focusing position in a photolithography process.

32. A manufacturing method according to claim 23, wherein said taper angles are determined by an ion beam etching process.